

Tertiary Treatment

Arvia are a team of tertiary water treatment experts with over a decade of installation and integration experience.

Its innovative Nyex™ systems are employed against the most challenging waters. They are designed and manufactured in-house and can be combined, where necessary, with ancillary technologies to provide a fully operational solution which is tailored exactly to your treatment requirements.

Our core technology comes in two different models, the Nyex™-a and Nyex™-e.



Nyex™-a

The Nyex™-a treatment process combines adsorption with electrochemical oxidation in a single, scalable unit. As the water flows into the reactor tank, contaminants are concentrated onto the surface of the proprietary Nyex™ adsorbent media. A low electrical current is simultaneously passed through the media bed to fully mineralise the adsorbed contaminants to H₂O, H₂ and CO₂.

The patented media is non-porous with high electrical conductivity and allows for targeted and continuous oxidation of the contaminants. Unlike granular activated carbon (GAC), Nyex™ media is effectively regenerated in-situ and the process can continue without interruption.

Nyex™-a Key Features

- Removes recalcitrant organics from 500 mg/L COD
- Achieves effluent quality to below 30 mg/L COD and has been applied in applications down to ppt level
- Treatment is targeted to the organic contaminants due to localisation on the adsorbent media
- Allows for safe reclamation or discharge of contaminated water

Nyex™-e

The Nyex™-e treatment process is an established technology which produces powerful hydroxyl (OH⁻) radicals that electrochemically destroy organic contamination, such as COD, to application-specific acceptable levels.

Nyex™-e Key Features

- Removes recalcitrant organics from 2,500 mg/L COD and below
- Achieves effluent quality to below 100 mg/L COD
- High concentration of OH⁻ radicals indiscriminately attack even hard-to-adsorb compounds
- Allows rapid removal of background COD, pre-treating wastewater for further treatment by the Nyex™-a system where required



In contrast to traditional advanced oxidation processes (AOPs), results using the Nyex™-a and Nyex™-e processes are achieved without chemical dosing and the production of toxic sludge or secondary waste, which are becoming increasingly expensive for industrial facilities to manage and dispose of.

Ancillary Technologies

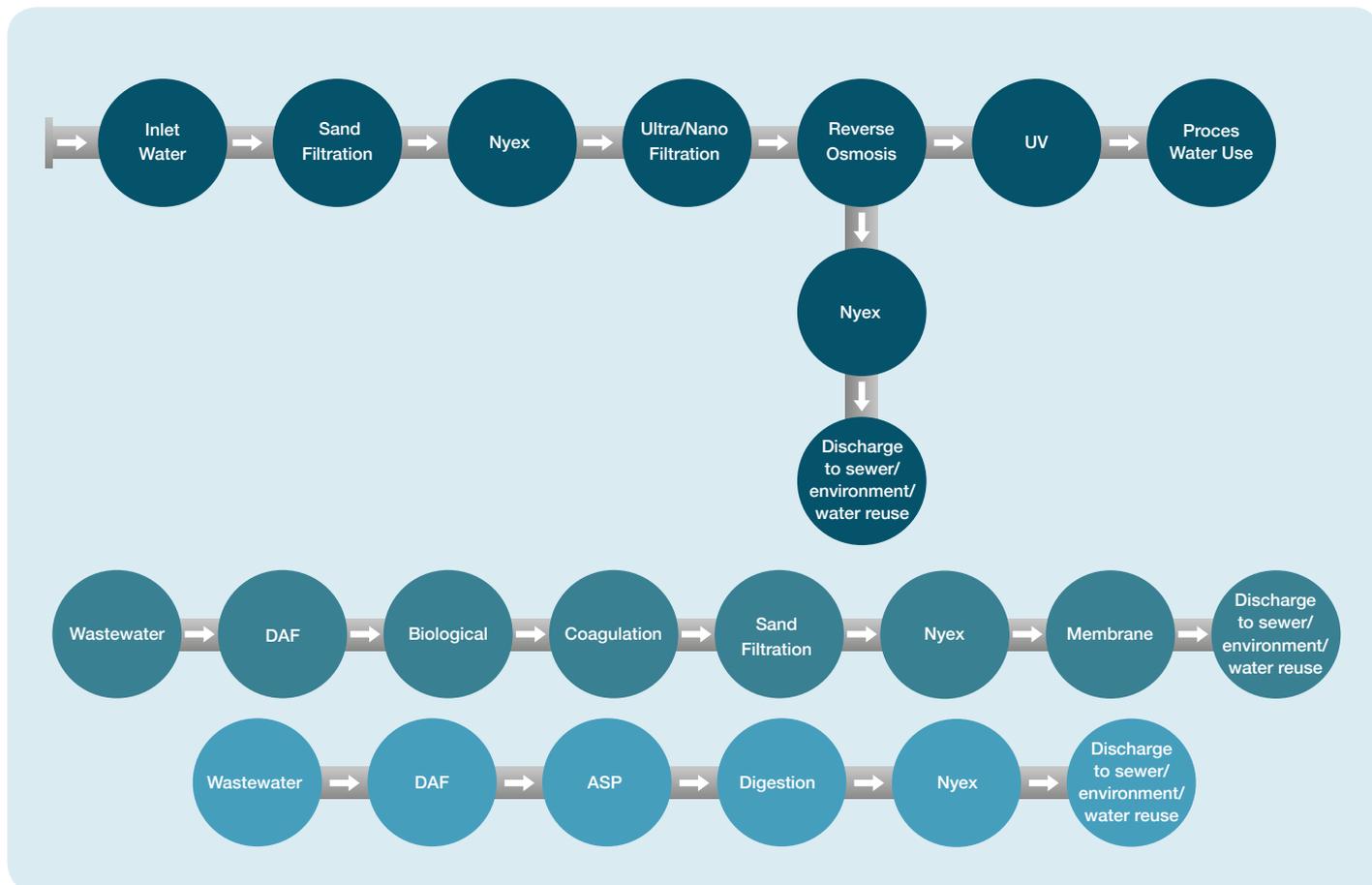
Water is complex and often requires various treatment steps to ensure it is of a sufficient quality for its intended purpose.

By selecting an integrated solution at the source of contamination, recalcitrant compounds are prevented from mixing and reacting with one another in final effluent and potentially becoming more complicated to treat.

Arvia have worked with clients on various projects where additional processes are sourced with the help of our partner companies.

This includes sand filters, ion exchange and UF/NF stages to provide a fully operational tertiary solution.

Examples of how we have integrated into a treatment train to meet specific needs and maximise results can be seen below:



Options to Suit your Needs

Arvia offer flexible packages to purchase or rent different models or combinations of our technologies based on recommendations from our Process Engineers, once we have analysed your water quality.

Dependant on the nature of the wastewater, we may recommend a Treatability Trial where we test a sample of the water, either in-house at our laboratory or at your site.

Following a trial, a comprehensive report is prepared detailing a complete solution to your tertiary water issue. This will include a Piping and Instrumentation Diagram for the best proposed set up, empirically informed costing projections and, if necessary, any ancillary technologies which would be provided pre or post-treatment, as recommended by our expert engineering team.

For further discussions on the options available to you, please get in touch with one of our Project Engineers today on +44(0)1928 515 328.

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